REMARKS

In the Office Action dated June 22, 2009, informalities were noted in claims 41, 43-45, 47, 48, and 53, all of which have been corrected.

In the previous Office Action, claim 46 was included among the claims that were withdrawn, but that claim was not included among the withdrawn claims in the latest Office Action. The status identifier for claim 46 has therefore been changed to be consistent with the latest Office Action.

Claims 41-45 and 47-50 were rejected under 35 U.S.C. §103(a) as being unpatentable over Stein et al in view of Graupe.

This rejection is respectfully traversed for the following reasons.

The Examiner acknowledged that the Stein et al reference does not appear to teach automatically electronically estimating an attribute of the contribution of the EKG signal to the raw signal, and an attribute of the contribution of the EMG signal to the raw signal, and to estimate those respective attributes and then, dependent on the estimated attributes, to determine an EMG window in a frequency range and to filter out the EMG signal only within this frequency range. The Examiner relied on the Graupe reference as allegedly providing such a teaching, but Applicants do not agree that the Graupe reference provides this teaching, for the following reason.

The Graupe reference discloses a method for adaptively filtering out an information signal s(k) from a raw signal y(k), but is composed of both the information signal s(k) and a noise signal n(k). Although the Graupe reference is primarily concerned with the information signal being a speech signal, the Graupe reference mentions that signals such as EMG signals embedded in noise can be filtered out as well (column 10, line 29).

The position of the Examiner is that the noise signal n(k) in Graupe can be considered to be the equivalent of the EKG signal in the claims of the present application, as stated at (page 5, second paragraph of the Office Action). Applicants do not agree with this position of the Examiner. The characteristics of a noise signal and an EKG signal are significantly different from each other, and when Graupe mentions the possibility of filtering out an EMG signal from a raw signal containing noise, it is clear to a person of ordinary skill that "noise" is not intended to encompass an EKG signal. The fact that the noise signal in Graupe is *not* intended to encompass an EKG signal (or be the equivalent of an EKG signal) is clear from column 8, line 17, where Graupe states that the filtering method disclosed therein can be used for filtering an EKG signal out of a raw signal containing noise.

In the Graupe reference, the contribution of the noise signal n(k) to the raw signal y(k) can be identified in the raw signal y(k) due to the fact that the power of the noise signal n(k) is more stationary than the power of the information signal s(k), as explained at column 2, lines 37-60, column 5, lines 6-16, and column 6, lines 28-30. Therefore, it is assumed that during a time period t_{max} of 120 msec, the information signal s(k) varies, whereas the noise signal n(k) is substantially stationary. The noise signal n(k) can then be determined as the offset (the minimum power value) of the raw signal y(k) during this time period. The only "filtering within a frequency window" that occurs in the Graupe reference is performed by studying one channel or frequency band at a time, and then not applying damping to a channel with no noise, or with the lowest noise, while damping other channels in which the noise level is higher. This is explained at column 6, lines 15-30.

Moreover, the channels and frequency bands in Graupe are not determined dependent on the noise signal and the information signal, as would be necessary in order to equate the Graupe teachings with the contents of independent claim 41 of the present application. Although not specifically stated in the Graupe reference, it is most likely that the channels and frequency bands in Graupe are predetermined.

Moreover, the information signal in the Graupe reference is not filtered out of the input signal only within a certain frequency window. Instead, the filtered output signal s*(k) is the sum of the contributions from the different channels/frequency bands, as explained at column 6, lines 4-30 and as shown in Figure 12.

The Graupe reference determines the contributions of the noise signal n(k) and the information signal s(k) to the raw signal y(k) by analyzing the raw signal in the time domain for a given channel/frequency band. As noted above, the information signal s(k) can be identified because the noise signal n(k) is substantially constant over time, for short periods of time. In the method of claim 41, since it is an EMG signal in the raw signal, that also contains an EKG signal, and since the EKG signal is non-stationary and quickly oscillating and may possibly even be irregular, it is not possible to analyze the raw signal in the time domain as is disclosed in Graupe. Instead, the EMG signal is analyzed in the frequency domain. Claim 41 has been amended to specifically state that the automatic determination takes place dependent on the frequency spectrum of the estimated EKG signal attribute and the frequency spectrum of the estimated EMG signal attribute.

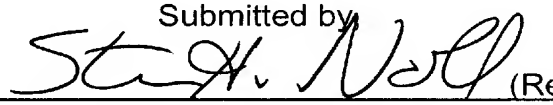
For the above reasons, none of claims 41-45 or 47-50 would have been obvious to a person of ordinary skill in the field of analyzing EKG signals, under the provisions of 35 U.S.C. §103(a), based on the teachings of Stein et al and Graupe.

Applicants note with appreciation that claim 53 was stated to be allowable if rewritten in independent form, but in view of Applicants' belief that claim 41 is allowable, claim 53 has been retained in dependent form at this time.

Early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by



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